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Ottawa, Canada
K1A 0C9

(21)	(A1)	2,072,781
(22)		1992/06/30
(43)		1993/04/22

5,650,786

(51) INTL.CL.⁵ E06B-001/26; E06B-001/12

(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) Window Frame

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(73) Same as inventor

(30) (US) 07/779,848 1991/10/21

(57) 4 Claims

Notice: The specification contained herein as filed

Canada

CCA 3254 (10-89) 41

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WINDOW FRAME

ABSTRACT OF THE DISCLOSURE

A rectangular window frame in direct contact with the concrete of a building foundation wall, being adapted to be inserted within concrete form walls during concrete pouring. The window frame is made of a single rectangular piece. The exterior edgewise surfaces of the window frame are provided with ribs, to locate the window frame within the concrete. The interior edgewise surfaces of the window frame are provided with transverse lips, to retain the sash of a window. A resilient polyurethane board is fitted between the top legs of the sash and window frame, to provide easy engagement/disengagement capability of the movable sash onto the fixed window frame.

FIELD OF THE INVENTION

The present invention relates to window frames and, more particularly, to a window frame adapted to be located in the concrete foundations of a building.

BACKGROUND OF THE INVENTION

5 Up to now, the installation of a window frame in the concrete foundation of a building, such as a house, required the construction of a permanent or temporary wooden frame inserted in the concrete forms and walls and around which concrete was poured. Thereafter, the conventional window frame, adapted to
10 receive glass panes, was fixed within the wooden frame or within the rectangular hole left in the concrete after removal of the wooden frame. In both cases, the installation of a basement window is time-consuming. Moreover, such a wooden frame has to be made from several pieces.

15 OBJECTS OF THE INVENTION

It is therefore the main object of the invention to provide a window frame which is itself used as a concrete form and, therefore, can be positioned directly in the concrete form walls during pouring of the foundation concrete of a building,
20 and which is adapted to remain in place and to directly receive the window panes of the window.

It is another object of the invention to provide a window frame of the character described, made of molded plastic.

It is another object of the invention to provide a
25 window frame of the character described, provided with means to

permanently seal and anchor the window frame within the surrounding concrete.

Another object of the invention is to provide means whereby the sash can be easily removed and reinstalled a number
5 of times from the concrete-anchored window frame.

SUMMARY OF THE INVENTION

In accordance with the objects of the invention, there is disclosed a planar window frame adapted to be installed in a concrete wall and comprising an integral assembly made entirely
10 of a rigid plastic material and forming a sill, a lintel and jambs, the exterior surfaces of said lintel, sill and jambs being provided with integral ribs to be embedded in the concrete and to anchor the window frame in said concrete, said ribs including a
15 rib flush with the respective inner and outer faces of said window frame and two intermediate ribs wherein a wide intermediate channel and two narrow inner and outer channels are defined between the successive pairs of said ribs, the four
20 resulting ribs being continuous all around the window frame; the interior surfaces of said lintel, sill and jambs defining an intermediate diametrically smaller section, corresponding to said intermediate channel of the exterior surface and being provided with means for anchoring a multiple glass pane assembly thereto,
said anchoring means including a pair of short hook members extending inwardly and outwardly respectively and orthogonally of
25 the plane of the window frame and destined to be matingly lockingly engaged by corresponding engaging members from the sash

of said multiple glass pane assembly; said window frame hook members being continuous all around the interior face of the window frame, and being also continuous around the exterior face of the window but for the sill portion thereof; and wherein
5 reinforcing means are provided, to impart rigidity to said window frame to maintain same within its single plane, and particularly to enable the window frame to resist torsional forces that could be applied with time and wear by the concrete therearound and that would bend the lintel or the sill outwardly from the window
10 frame original plane.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the cut-away basement concrete wall of a building and showing the window frame of the invention installed within said concrete wall;
15 Figures 2-4 are a plan view, side edge view and top edge view respectively of the window frame;
Figure 5 is a broken, enlarged, sectional view taken along line 5-5 of figure 2;
Figures 6 and 8 are enlarged cross-sections about lines 6-6 and
20 8-8 respectively of figure 3;
Figure 7 is an enlarged cross-section, taken along line 7-7 of figure 2;
figure 9 is an enlarged view of area 9 of figure 2;
figure 10 is an edge view about perspective 10 of figure 5;
25 figure 11 is a view similar to figure 5 but with the window frame operatively edgewise embedded into cement and glass panes

fitted therewithin, as in figure 1; and
figure 12 is an edge view from perspective 12-12 of figure 11.

DETAILED DESCRIPTION OF THE INVENTION

The window frame 10 is made of a single, integral,
5 rectangular part. The window frame 10 defines an upper lintel
12, a lower sill 14, and a pair of opposite jambs 16, 18
endwisely integrally joining the lintel to the sill. Sliding
glass panes G, G' close the aperture defined by frame 10 and are
locked by latches 21. Latches 21 are anchored to the window
10 frame by bolts 23 extending thicknesswisely through and beyond
the jambs, 16, 18, as best seen in figure 3.

Preferably, the lintel 12 includes arrow indications
13a, 13b on its outer edge, to alert the worker that this window
frame leg is the lintel and also to indicate where the "outer"
15 side of the window frame is located, see figure 4.

The external surfaces 22 of the window frame 10 (figure
3) are provided with four longitudinally-extending, spaced,
parallel ribs 24. These ribs 24 serve to anchor the window frame
within the concrete C, and to obtain good sealing between the
20 window frame and the concrete C. There are two ribs 24a and 24b
flush with the respective, opposite, internal and external
surfaces of the window frame 10, and two intermediate ribs 24c
and 24d. Bolts 23 extend between ribs 24c and 24d close to rib
24c. More particularly, a main, wider, central channel 25a, is
25 defined between intermediate ribs 24c and 24d, and two inner and
outer, narrower, channels 25b, 25c, are respectively bounded by

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ribs 24a, 24c and 24b, 24d. Rib 24d includes a few hand-wide cavities 24d' on each jamb section thereof, to facilitate manual transport of the window frame before intallation.

As clearly illustrated in figure 5, channels 25a-25c
5 extend through the plane of the window frame 10, and are parallel to each other but for the outer channel leg 25a' of the lower sill 14, which is preferably outwardly downwardly inclined. Each of the four legs of each narrow channel 25b, 25c, merge at each of their two ends with the corresponding ribs 24a, 24c or 24b,
10 24d respectively, about outwardly downwardly inclined extensions 27. Each rib 24a, 24b defines a free end portion extending radially exteriorly relative to ribs 24c, 24d, and each of the latter also defines a free end portion extending radially interiorly relative to the former.

15 The sill portion of central channel 25a in turn includes a number of elongated, spaced cavities 36, extending transversely of the plane of the window frame 10. Cavities 36 (figures 7-8) serve to evacuate condensation water dripping from the windows, as will be seen below.

20 The inside surface 26 of the window frame (figures 5 and 11) defines a thicknesswisely intermediate, diametrally smaller section 28, corresponding to the intermediate channel 25a of the exterior surface 24 of the window frame. Thus, channels 25b, 25c are exteriorly offset relative to intermediate channel
25 25a. A pair of opposite outer and inner lips 30a, 30b, are provided coextensively of the upper lintel portion 12 of the base

plate 32 corresponding to channel 25a. Lips 30a, 30b thus extend parallel to channels 25b, 25c interiorly therefrom. Lips 30a, 30b are to be hookingly engaged by a cross-sectionally L-shape mating part M of the sash S of a multiple glass-pane assembly G, 5 G', ... whereby the sash S can be secured to the window frame 10 in coplanar fashion. The lower sill 14 further includes lengthwise cavities 33 made on the inside wall of ribs 24c intermediate walls 32 and 25b/25c. Cavities 33 (figure 5) are to be engaged by hook portion M to secure sash S to the lower leg of 10 window frame 10. The upper leg of sash S supports between its transverse hook legs M a board of compressible material Z. Board Z is elastic yet resilient, and has thermally insulating properties, e.g. polyurethane. The spring-back, compressive capability of board Z enables release of sash S from the window 15 frame lower sill, i.e. by forcibly compressing board Z against the upper lintel 12, the hooks M may release cavities 33 so that the sash may clear the lower sill 14: this is suggested in figure 12 by arrow 35 and lifted sash S' in phantom lines.

The sill portion 14 of the intermediate channel plate 20 leg, 28', is downwardly exteriorly inclined (figure 11). Moreover, the outer channel 25b defines a corresponding channel base plate 29 whose sill leg 29' is also downwardly outwardly inclined being coextensive with plate leg 28'. A passage E can therefore exist between the sash S and the plate 28', and also, a 25 slight lower gap H can further exist between the lower exterior leg of the sash S and the inclined plate member 28', 29'. The

interspacing N between exteriorwise successive pairs of glass planes G fluidingly communicate with passage E through bottom outlets O, wherein condensation fluid from the glass panes may escape outwardly of the window frame through bottom outlet ports 5 O, downwardly outwardly inclined passage N and escape channel H, and outwardly along inclined ramp 29'.

The (upper) lintel leg of strip 32 is formed with two downwardly extending bosses 34, see figures 2 and 9, at the opposite ends of the lintel 12. The bosses are destined to abut 10 against the top of the meeting rail of the innermost glass pane in the closed position of said glass pane, so as to form a better seal. These bosses are used when the two glass panes of the inner pair of such panes are frameless.

The window frame 10 is made specifically from a molded 15 plastic material.

If the window frame is of such a dimension that it would tend to bend at its center under the weight of the freshly-poured concrete, additional temporary supports (not shown) may be installed within the window frame between the lintel 12 and the 20 sill 14.

The embodiments of the invention in which an exclusive property or privilege is claimed, are defined as follows:

1. A planar window frame adapted to be installed in a concrete wall and comprising an integral assembly made entirely of a rigid plastic material and forming a sill, a lintel and jambs; the exterior surfaces of said lintel, sill and jambs being provided with integral ribs, to be embedded in the concrete and to anchor the window frame in said concrete, said ribs including two ribs flush with the respective inner and outer faces of said window frame and two intermediate ribs, wherein a wide intermediate channel and two narrow inner and outer channels are defined between the successive pairs of said ribs, the four resulting ribs being continuous all around the window frame; the interior surfaces of said lintel, sill and jambs defining an intermediate, wide, diametrically smaller section, corresponding to said wide intermediate channel of the exterior surface, and being provided with means for anchoring a multiple glass pane assembly thereto, said anchoring means including a pair of short hook members extending inwardly and outwardly respectively and orthogonally of the plane of the window frame and matingly lockingly engaged by corresponding engaging members from the sash of said multiple glass pane assembly; said window frame hook members being continuous all around the interior face of the window frame, but for the sill portion thereof; said window frame sill portion defining a pair of opposite, lengthwise cavities releasably engaged by said sash engaging members; further including a

compressible yet resilient board, made from a thermally insulating material and fitted between the upper lintel of the window frame and the upper leg of the sash; wherein said sash is releaseable from said window frame by edgewise compressing said sash against said lintel, so that said sash release said sill cavities, whereby the sash can then be tilted away from the window frame.

2. A window frame as defined in claim 1, wherein the exterior face of the sill portion thereof includes means for outward free escape of condensation water formed about the glass panes mounted within said window frame, said escape means including a chamferring of the exterior portion of said diametrically smaller intermediate portion of the window frame to progressively increase its diameter on the exterior side thereof whereby an outwardly opening fluid passage is defined between the exterior portion of said glass pane assembly and said chamferring exterior portion of the window frame intermediate portion, with said sash having channels adjacent each glass pane thereof for escape of condensation water to said window frame sill portion.

3. A window frame as in claim 1, further including two downwardly extending free bosses made at both opposite ends of said lintel, each said boss destined to abut against the top of the meeting rail of the two opposite innermost glass panes in the closed position of said glass panes,

so as to form a better seal.

4. In combination, a planar window frame fixedly installed in a concrete wall and comprising an integral assembly made entirely of a rigid plastic material and forming a sill, a lintel and jambs; the exterior surfaces of said lintel, sill and jambs being provided with integral ribs, being permanently embedded in the concrete and positively anchoring the window frame in said concrete, said ribs including two ribs flush with the respective inner and outer faces of said window frame and two intermediate ribs, wherein a wide intermediate channel and two narrow inner and outer channels are defined between the successive pairs of said ribs, the four resulting ribs being continuous all around the window frame; the interior surfaces of said lintel, sill and jambs defining an intermediate, wide, diametrically smaller section, corresponding to said wide intermediate channel of the exterior surface, and being provided with means that positively anchors a multiple glass pane assembly thereto, said anchoring means including a pair of short hook members extending inwardly and outwardly respectively and orthogonally of the plane of the window frame and destined to be matingly lockingly engaged by corresponding engaging members from the sash of said multiple glass pane assembly; said window frame hook members being continuous all around the interior face of the window frame, wherein the exterior face of the sill portion thereof includes means for outward free escape of condensation water formed about

the glass panes mounted within said window frame, said escape means including a chamferring of the exterior portion of said diametrally smaller intermediate portion of the window frame to progressively increase its diameter on the exterior side thereof whereby an outwardly opening outstanding fluid passage is defined between the exterior portion of said glass pane assembly and said chamferring exterior portion of the window frame intermediate portion, with said sash having channels adjacent each glass pane thereof for escape of condensation water to said window frame sill portion.

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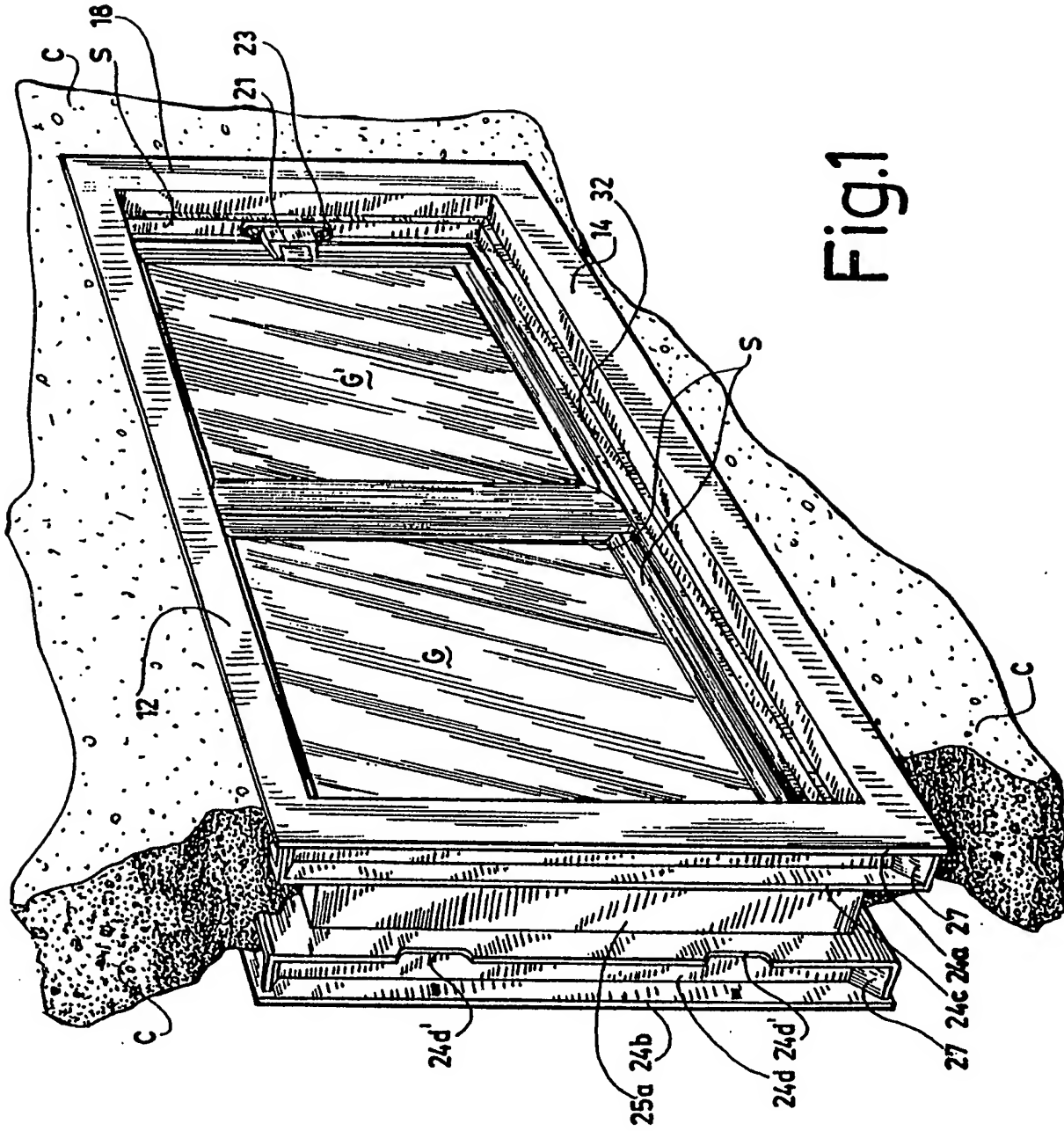
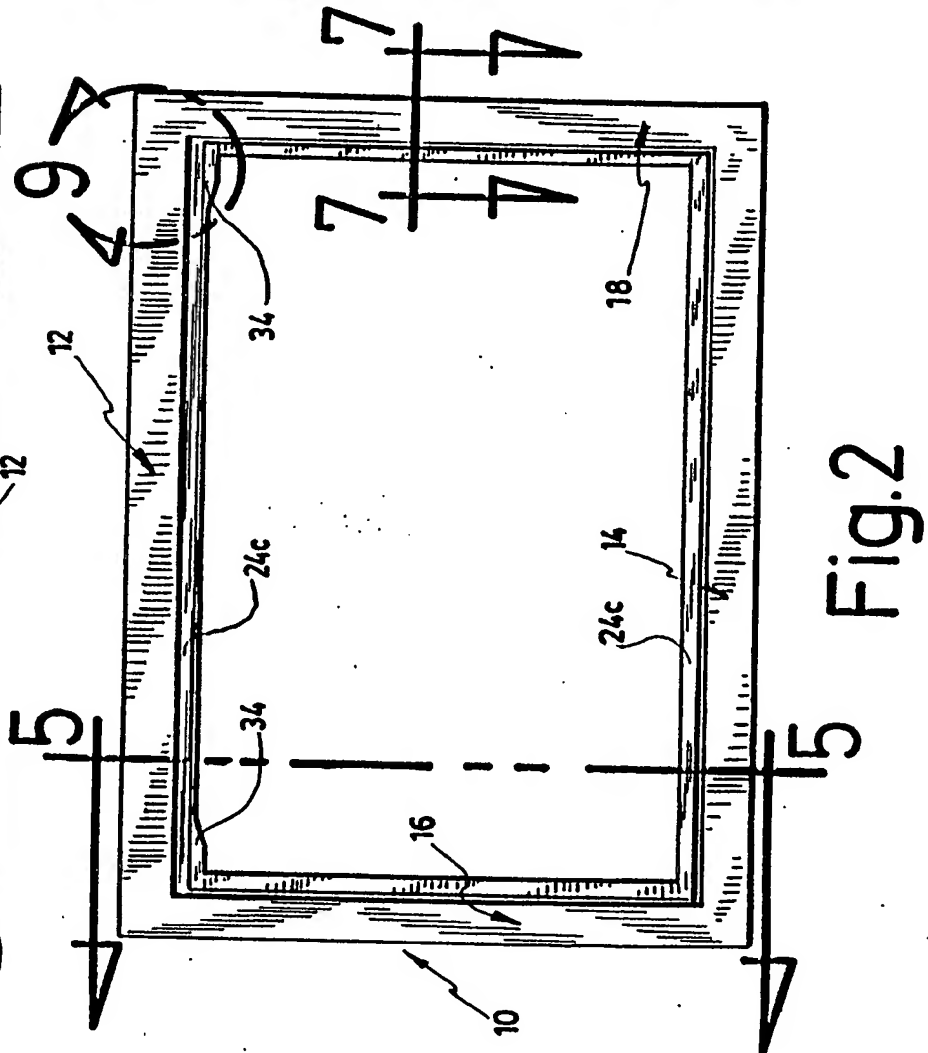
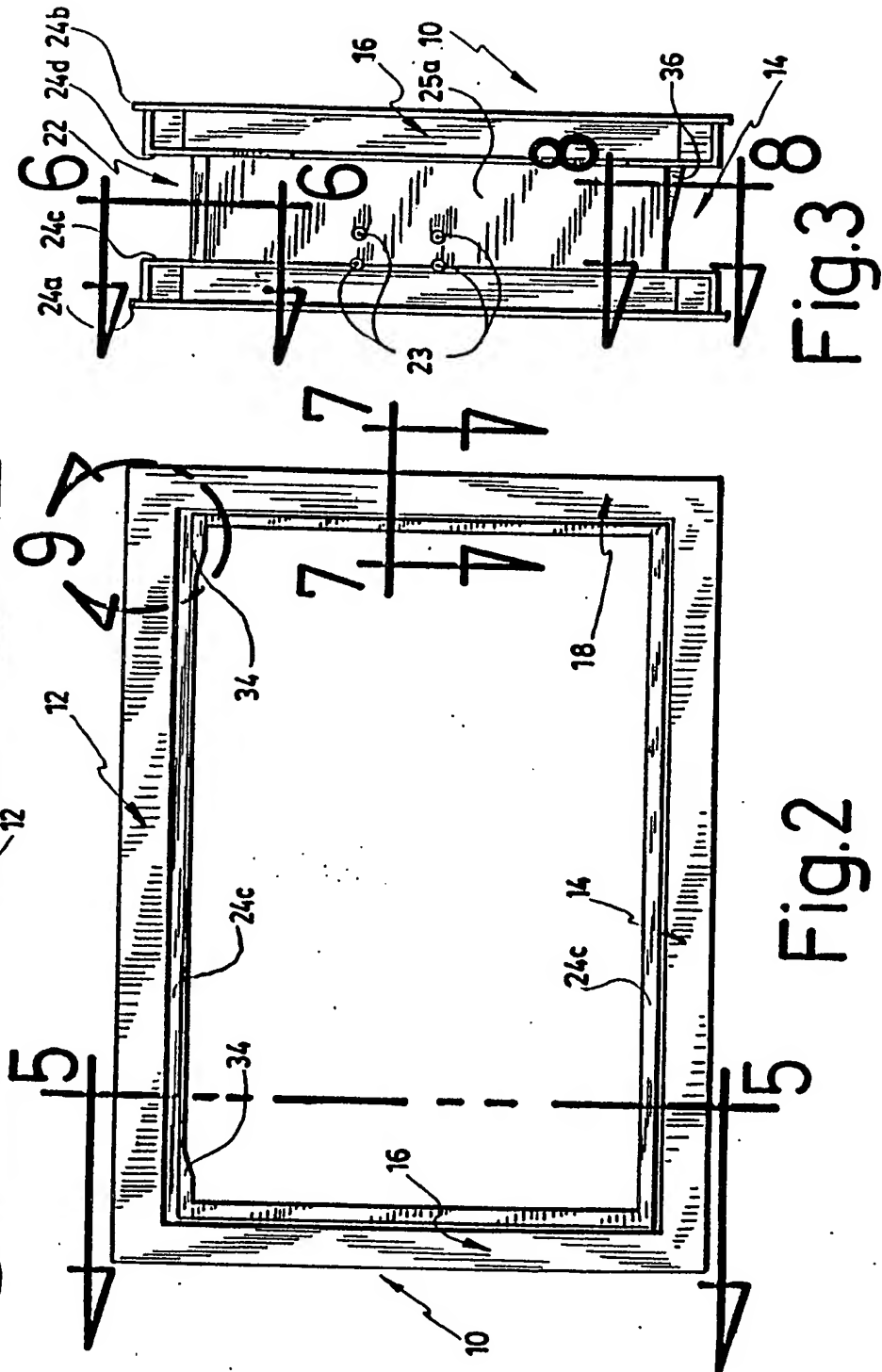
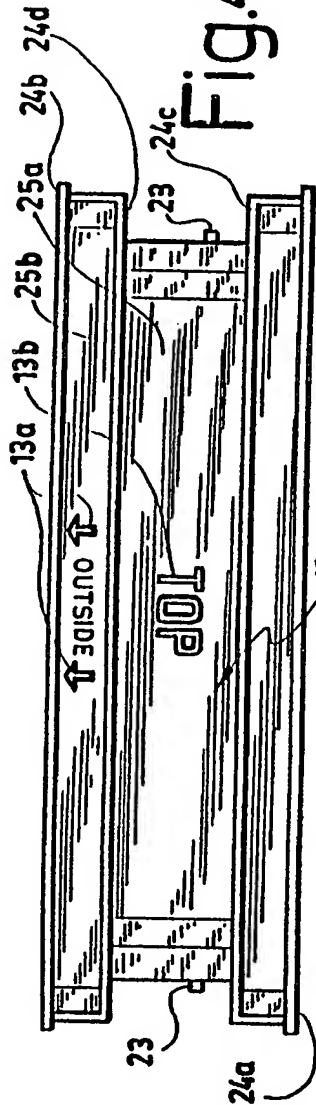
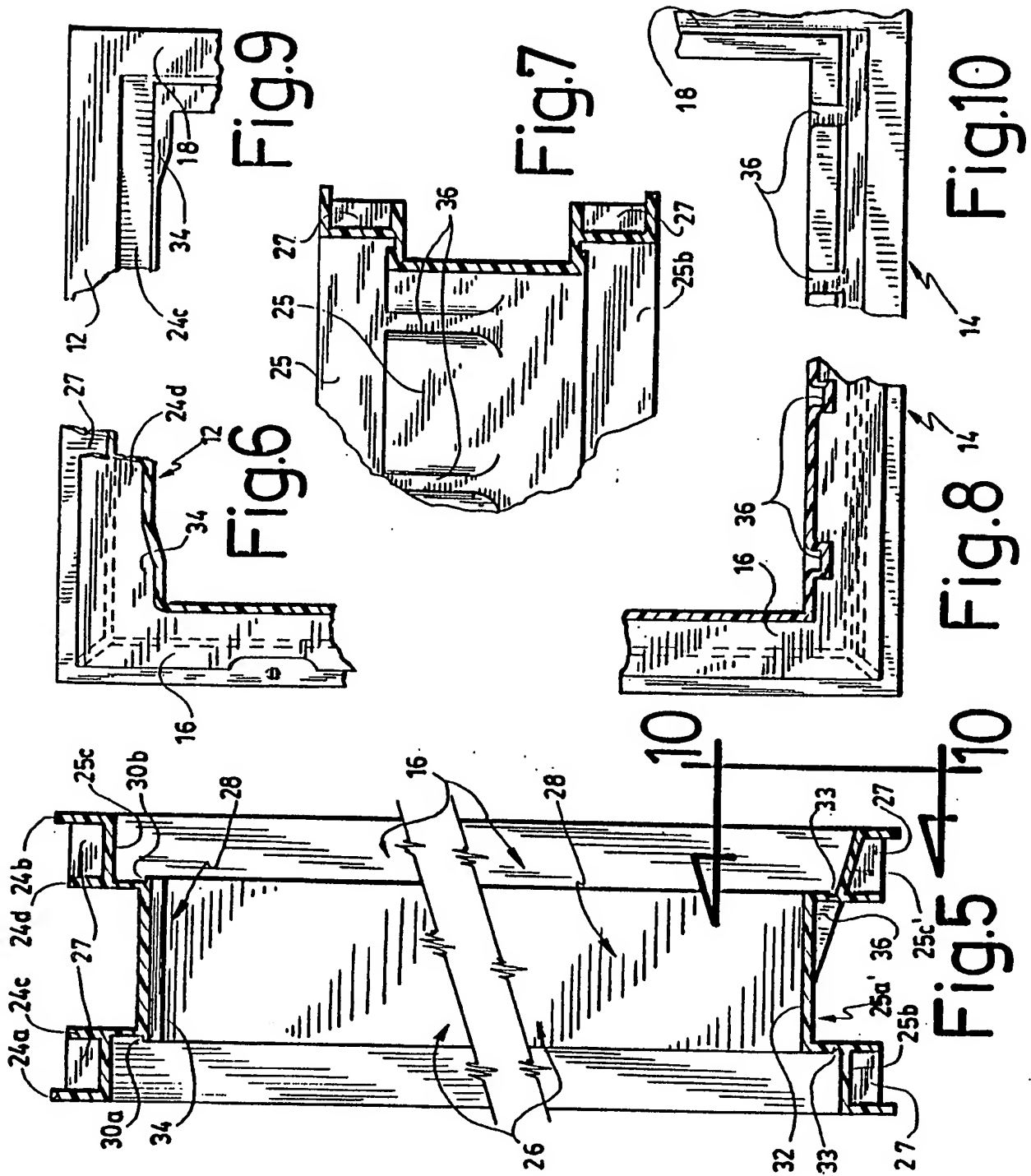


Fig. 1

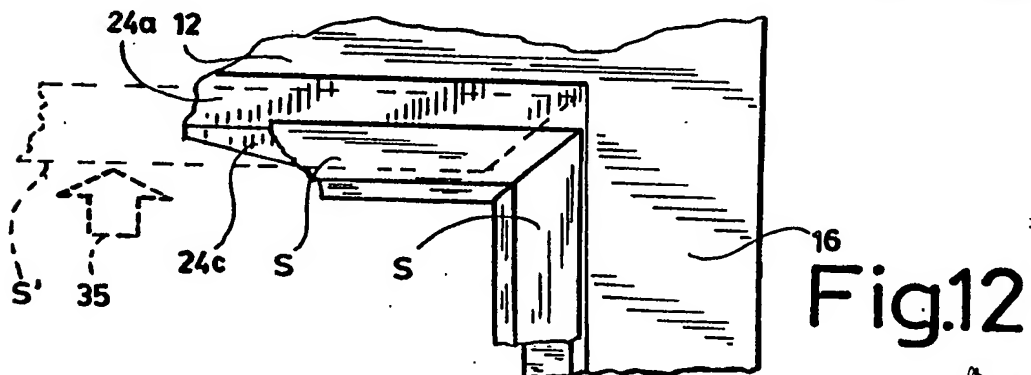
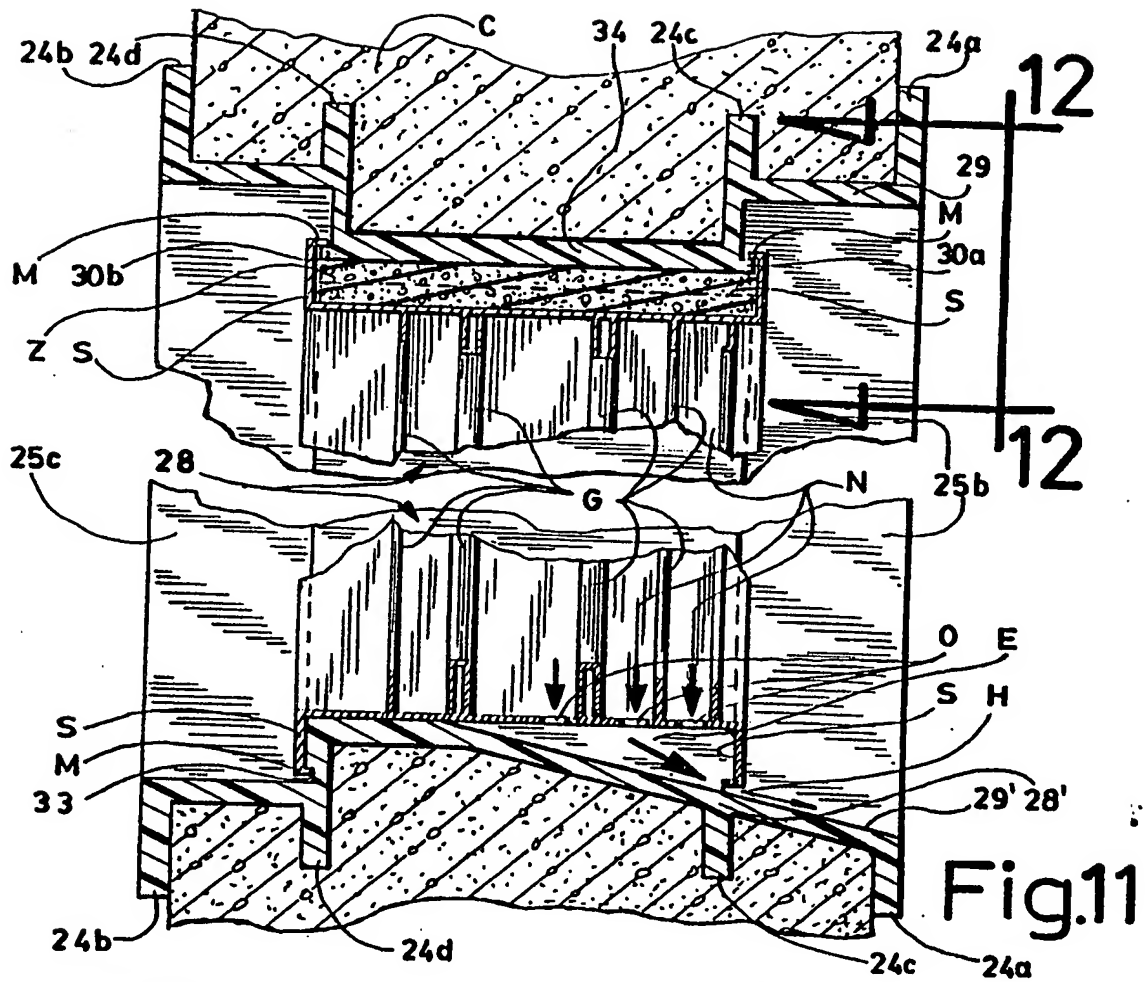
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